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MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.			STERRETT, JONATHAN G	
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ALEXANDRIA, VA 22314			PAPER NUMBER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/090,758

Applicant(s)

MAIE ET AL.

Examiner

Jonathan G. Sterrett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2002.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-17 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4-13-04 / 3-6-02.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Summary

1. **Claims 1-17** are pending in the application. This Non-Final Action is responsive to applicant's preliminary amendment of August 20, 2002. Claims 1-17 were amended in the preliminary amendment.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 4, 13, 6-9, 10, 15-17** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding **Claim 4**, the following limitation is cited describing a parts completion calendar: "a parts completion calendar which is supplied to a parts maker with employment of both a providing period assigned by respective parts and said manufacture data calendar". The limitation of a providing period is not recited in such a way as to make it clear how the providing period is connect to the manufacture date calendar. Therefore the claim is indefinite.

Regarding **Claim 6**, the limitation is cited "reserves production of one of empty seats of the production reservation calendar". It is not clear what is meant by "seats" in the calendar. One of ordinary skill in the art would recognize that resources in production (e.g. capacity in a machining center) are reserved according to the capacity

and the time required. The use of the term 'seat' in this context makes the claim indefinite, because it is not clear what is being claimed. Furthermore, it is usual in production planning to denote capacity by units of time in conjunction with an aspect of the machine, e.g. man-hours of labor operating a CNC-VTL or hours of 'turn-time' on a lathe.

Regarding **Claim 7**, the limitation is cited "located before the requested due date by more than a delivery due date". Referencing different dates using the term 'by more than' makes the claim indefinite, since it is not clear how the different dates claimed are affecting the reservation of production capacity.

Regarding **Claim 8**, the limitation "optional time period" is cited. This limitation is cited in conjunction with a marketing forecast being input into the system to ultimately reserve production capacity. It is not clear how this optional time period is being used to affect the production scheduling, therefore, the claim is indefinite.

Regarding **Claims 10 and 15**, the limitation "reserves another article" lacks antecedent basis in the claim. Furthermore it is not clear how the reservation of another 'article' is connected to the reserve information being changed to 'no order' and a corresponding reservation being cancelled. Therefore the claim is indefinite.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. **Claims 1, 5, 10 and 14** are rejected under 35 U.S.C. 102(e) as being anticipated by **Gleditsch US 6,393,332** (hereinafter **Gleditsch**).

Regarding **Claim 1**, Gleditsch teaches:

a supporting system for permitting the sales department to input estimate information; and

column 2 line 32-35, MRP II systems allow the entry of marketing forecasts to determine how factory scheduling should be booked to meet those forecasts. –see column 3 line 52-55

a generating part of a production reservation calendar in which a production schedule in a production reservation calendar is reserved in response to the estimate information input to said supporting system,

column 3 line 55-58, the production management system uses market forecasts (i.e. estimate information input).

Column 8 line 18-22, based on the input information (including marketing forecasts), the system builds a manufacturing schedule (i.e. a calendar, since the manufacturing planning system taught by Gleditsch manages daily demand, i.e. it is calendarized – Note that Figure 1 provides for a calendarization, i.e. related to days, of the demand and how it will be met. See also Figure 8a-8v for examples of daily

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calendars of demand scheduling) that creates daily demand requirements to meet the forecasted demand (note the preceeding discussion about changing the forecast or orders within leadtime, thus the invention not only reserves production capacity to meet the limitations, but also creates a buffer so that the manufacturing schedule can accommodate flexibility as a result of orders being placed within lead time).

wherein production capacity that is determined based on a capability of production in the production department has been input to the production reservation calendar in advance.

Column 2 line 48-50, MRP II production scheduling matches demand to capacity well in advance of the production lead time, that is, well in advance of the planning horizon when the schedule cannot be changed because of raw material lead times. MRP II uses a production capacity input into the system that is determined based on a capability of production in the production department.

Regarding **Claim 5**, Gleditsch teaches:

a manufacture date calendar which is generated based on the estimate information input to said supporting system, and

column 3 line 57, 65-66, system uses customer forecasts as a scheduling input to create a date for manufacturing for support functions of purchasing, raw material procurement, and production.

Column 4 line 1-3, the system generates a series of dates (i.e. essentially a calendar) for manufacturing to schedule daily production and to determine when items

(including component parts) need to be produced to meet a customer ship date.

wherein said generating part of a production reservation calendar generates a manufacture stage calendar which is supplied to a manufacture department with employment of said manufacture date calendar.

Column 3 line 55-56, the production reservation calendar includes a manufacturing stage because it takes into account the various components that are necessary to be produced to complete a finished product (see also column 8 line 18-23). In column 7 line 9-13, note that Gleditsch teaches a 'pipeline model' (i.e. where stages of manufacture occur) where the requirements for the manufacture of finished goods are broken down into the required components.

Regarding **Claim 10**, Gleditsch teaches:

wherein when reservation information is changed into "no order", said generating part of a production reservation calendar cancels a corresponding reservation and reserves another article.

Column 10 line 52-54, orders are cancelled within a demand time fence, in the case of sporadic demand.

Column 10 line 60-63, cancelled orders and marketing orders (i.e. reserved capacity) are consumed when orders come in that are within the DTF – see Figure 6. Gleditsch's teachings include the use of orders from forecasts and in maintaining excess capacity so that orders, (ATP orders, for example) can be allocated against actual customer orders. Under the ATP concept, as taught by Gleditsch, spare capacity

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is allocated either to ATP or to actual orders (not counting the 'war chest'). When orders are cancelled, the capacity that is available is then placed into ATP status as order capacity that is reserved to ATP, i.e. it becomes an ATP 'reservation'. Thus the canceling of an actual customer order results in the reservation of a corresponding ATP order (i.e. another article).

Claims 14 recites limitations similar to those addressed by the rejection of **Claim 10** above, and is therefore rejected under the same rationale.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 2-4 and 11-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gleditsch US 6,393,332** (hereinafter **Gleditsch**).

Regarding **Claim 2**, Gleditsch teaches where the estimate information (i.e. the forecast information from marketing) is input into the system (column 6 line 14-16) but does not teach:

wherein the estimate information from the sales department is input into said supporting system by employing either the Internet or a public telephone

line.

However, it is old and well known in the art to input information into a system using the internet. The use of the internet makes it possible to transmit information, including for entry into a system, more efficient since the internet provides for convenient remote access.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Gleditsch, regarding using marketing forecasts as an input to scheduling production, to include the step of inputting the information using the internet, because it makes the input of information more efficient since it utilizes the internet.

Regarding **Claim 3**, Gleditsch teaches:

the need to take uncertainty (i.e. probability) into account when planning for production by using a 'flex fence' which allocates production for orders that are stochastic (i.e. by chance) in nature (see Figure 1 for an illustration of the flex periods and flex fences and column 4 line 49-55)).

and said generating part of a production reservation calendar calculates a production schedule based upon said degree of certainty of the order and

column 17 line 1-5, production capacity is reserved (i.e. the flex fences taught by Gleditsch) based on trends and historical patterns. Gleditsch suggests that there is a

probability that certain orders may come in at the last minute and require fulfillment.

enables to show a completion date of the article at a time the sales department inputs the estimate information.

Column 14 line 20-25; the date that the order can be filled (i.e. a completion date) is shown at the time when the order information is input into the system. (see also column 12 line 17-22 for input of orders and column 12 line 43-45 for a discussion of order fulfillment using forecast order policy, i.e. filling orders based on inputs that are forecast).

Gleditsch does not teach order information indicating a degree of certainty of an order.

While Gleditsch inputs forecasts into the system and uses these to schedule production, the forecasts used by Gleditsch do not have information containing a degree of certainty associated with them. Gleditsch does teach that there is uncertainty associated with forecasts input into the system by using excess capacity to adjust for it.

However, It is old and well known in the art of statistics to use probabilities (i.e. degrees of certainty) to predict an outcome. (For example, flipping a coin 10 times with a 50% probability of 'heads' will result in a prediction that 'heads' will occur $10 \times 50\% = 5$ times). This characteristic of statistics allows using degrees of certainty (i.e. probability) to be used to determine an outcome.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Gleditsch, regarding using marketing forecasts as an input to scheduling production, to include the step of using a probability of occurrence (i.e. a degree of certainty) with the forecast order, because it would provide for an actual forecast number to be input into the system based on its probability (i.e. degree of certainty) and result in more accurate forecasts.

Regarding **Claim 4**, Gleditsch teaches:

wherein said generating part of a production reservation calendar comprises: a manufacture date calendar which is generated based on the estimate information input to said supporting system, and

column 8 line 18-24, the manufacturing schedule for daily requirements (i.e. the manufacturing date calendar) is generated based on anticipated demand (i.e. including estimate information) input into the system.

wherein said generating part of a production reservation calendar generates a parts completion date calendar

column 12 line 15, subassemblies (i.e. parts) orders are entered into the system.

Column 7 line 9-10, the underlying demand management model utilizes a model of the amount of time for products to be made from component raw materials (i.e. parts).

Column 8 line 20-23, the system produces plans for raw material and daily

demand requirements of manufacturing resources. These plans constitute a production plan (i.e. date calendar) to produce the parts that are assembled into finished product on the scheduled date for the order to be fulfilled.

Gleditsch teaches that finished goods are manufactured from component elements and takes into account the scheduling of both finished goods and component parts in order to provide scheduled dates for the providing of finished goods (see column 3 line 65-67). While Gleditsch does not teach the additional limitation of:

which is supplied to a parts maker with employment of both a providing period assigned by respective parts and said manufacture data calendar.

However, it is old and well known in the art of supply chain management to provide a supplier (i.e. a parts maker) with due dates for parts (i.e. the manufacturing date calendar) and for the supplier to use a providing period (i.e. a part lead time) in order to provide parts so that the manufacture date calendar is met. This is done so that suppliers can provide parts to the manufacturer (i.e. their customer) so that the manufacturer can meet its order commitments in a timely manner (i.e. as promised).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Gleditsch, regarding using a supply chain model that plans a schedule calendar from raw materials to finished goods, to include the step of providing the supplier with a providing period to be used in conjunction with the

manufacturing date calendar, because it would ensure the manufacturer had the parts components to meet scheduled finished goods calendar dates.

Regarding **Claim 11**, Gleditsch teaches:

wherein when reservation information is changed into "no order", said generating part of a production reservation calendar cancels a corresponding reservation and reserves another article.

Column 10 line 52-54, orders are cancelled within a demand time fence, in the case of sporadic demand.

Column 10 line 60-63, cancelled orders and marketing orders (i.e. reserved capacity) are consumed when orders come in that are within the DTF – see Figure 6. Gleditsch's teachings include the use of orders from forecasts and in maintaining excess capacity so that orders, (ATP orders, for example) can be allocated against actual customer orders, i.e. reservation of another article.

Claims 12 and 13 recite limitations similar to those addressed by the rejection of **Claim 11** above, and are therefore rejected under the same rationale.

8. **Claims 6-9 and 15-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gleditsch US 6,393,332** (hereinafter **Gleditsch**) in view of **Harrell, Charles**; "Simulated coil winding manufacturing systems", Mar 2000, Appliance

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Manufacturer, Troy, pg.4, 5 pgs. ProQuest ID 51273158 (hereinafter **Harrell**).

Regarding **Claim 6**, Gleditsch teaches:

a supporting system for permitting input and storage of estimate information containing a requested due date from the sales department; and

column 8 line 45-47, customer orders (including forecast ones) are stored in a order management system – see also column 12 line 22-27, the forecast order policy is stored.

Column 11 line 24, ATP is used to allocate orders to forecast.

a generating part of a production reservation calendar reserving a production schedule in a production reservation calendar based on the estimate information input to said supporting system,

column 11 line 17, available to promise (ATP) is used to allocate (i.e. reserve a production schedule on the calendar) capacity to forecast orders.

wherein said generating part of the production reservation calendar reserves production of one of empty seats of the production reservation calendar

column 12 line 10-15, production demand is reserved based on product orders entered into the system.

which is calculated based on a standard time period required for supply of parts,

column 8 line 60-62, production reservation is based on the time fence, i.e. the lead time required to make the parts to fill the order (i.e. the supply of parts). –see also

column 3 line 65-67, supplier lead time to supply parts.

an optional time period needed for a modified article modified from the standard article,

column 11 line 13-17, ATP families represent subassemblies that can be shared across various product platforms (i.e. shared common assemblies or parts). – see col 12 line 15-18. These optional assemblies are accounted for in the production scheduling taught by Gleditsch because they are part of the ATP ‘families’ –see col 11 line 23-25 & col 11 line 7-10. In column 11 line 55-60, Gleditsch teaches optional processes, e.g. punching or spraying, being performed on otherwise standard parts.

and delivery time period for delivering the article.

Column 1 line 25-27, Gleditsch teaches the need to ship by a particular date (i.e. a shipping time period) – see also column 4 line 1-3.

Gleditsch does not teach setup time and how it impacts production.

Harrell teaches setup time in manufacturing and that setup time affects production (page 3 para 8, setup time for parts, i.e. articles, in manufacturing; page 5 para 21, impact of setup on production, i.e. production rate). Harrell further teaches that in process flow, that all parts follow the same processing (i.e. standard setups and processing time. Harrell teaches that in cellular manufacturing, that some parts may receive one operation (i.e. including the setup time for that operation) and other parts may require other operations (i.e. including the setup time for this ‘optional’ operation).

Harrell and Gleditsch both address improving manufacturing operations, thus both Harrell and Gleditsch are analogous art.

Harrell teaches that providing a detailed analysis of production operations can improve the productivity of those operations significantly (page 5 para 4).

It would have been obvious to one of ordinary skill in the art to modify the teachings of Gleditsch, regarding scheduling manufacturing based on the resources required to turn raw materials into parts, to include the step of accounting for setup time, including for both standard and modified parts, because it would help improve the productivity of the operation because setup time is known to adversely impact productivity.

Regarding **Claim 7**, Gleditsch teaches:

wherein said generating part of the production reservation calendar reserves production of one of the empty seats located before the requested due date by more than a delivery due date

column 3 line 60-65, the system reserves production based on when the customer order needs to be filled – see also column 4 line 1-5, the materials are ordered according to their lead times so that the promised shipping date is met.

and located after elapsing a total of the standard time period originated from inputting the estimate information by the sales division

column 2 line 32-35, MRP II systems (including the system taught by Gleditsch, which incorporates the elements of MRP II to include accounting for orders received within lead time) elapse (i.e. count) the total standard time periods required to manufacture parts to complete an order (i.e. including the forecasted orders taught by Gleditsch). –see also column 3 line 54-58.

Gleditsch teaches the sharing of ATP parts across part families. This sharing implies that each of these ATP parts is a type of option that is shared across different parts.

Gleditsch does not teach an optional time period as an input into production.

However, the input of optional time periods to account for options having been selected in producing articles for production orders is old and well known in the art. This ensures the production schedule accurately accounts for options that have been selected to be added to standard products.

It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the teachings of Gleditsch and Harrell, to further include the step of accounting for an optional time period in the scheduling of production, because it would make the production schedule more accurate by accounting for options that are included into standard products.

Regarding **Claim 8**, Gleditsch teaches:

wherein said generating part of the production reservation calendar reserves production of an empty seat of the production reservation calendar which is located nearest the requested due date.

Column 3 line 60-65, the production schedule is set so that material and operations are conducted so that the order is ready when the customer requests it (i.e. production capacity is reserved on a calendar nearest the requested due date).

Regarding **Claim 9**, Gleditsch teaches:

wherein said generating part of the production reservation calendar reserves production of an empty seat of the production reservation calendar which locates nearest the requested due date and after the requested due date when no empty seat is found before the requested due date.

Column 10 line 40-45, when demand is not satisfied, the system will shift the production reservation calendar to the right (i.e. later and later) until the demand is satisfied, including for when the reserved production is shifted beyond the requested due date. (Examiner comment: While Gleditsch's invention attempts to resolve orders received within leadtime, i.e. within the DTF, his system is designed to meet unanticipated demand while minimizing RM, WIP and FG on hand, and does not address all production contingencies – e.g. a customer places a large order within leadtime. This means that a large order would push the production scheduling far to the right).

Regarding **Claim 15**, Gleditsch teaches:

wherein when reservation information is changed into "no order", said generating part of a production reservation calendar cancels a corresponding reservation and reserves another article.

Column 10 line 52-54, orders are cancelled within a demand time fence, in the case of sporadic demand.

Column 10 line 60-63, cancelled orders and marketing orders (i.e. reserved capacity) are consumed when orders come in that are within the DTF – see Figure 6. Gleditsch's teachings include the use of orders from forecasts and in maintaining excess capacity so that orders, (ATP orders, for example) can be allocated against actual customer orders, i.e. reservation of another article. Under the ATP concept, as taught by Gleditsch, spare capacity is allocated either to ATP or to actual orders (not counting the 'war chest'). When orders are cancelled, the capacity that is available is then placed into ATP status as order capacity that is reserved to ATP, i.e. it becomes an ATP 'reservation'. Thus the canceling of an actual customer order results in the reservation of a corresponding ATP order (i.e. another article).

Claims 16 and 17 recite limitations similar to those addressed by the rejection of **Claim 15** above, and are therefore rejected under the same rationale.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 6151582 by Huang discloses the management of an agile supply chain through a management decision system.

US 5930156 by Kennedy discloses a model network for process planning for manufacturing.

US 6463345 by Peachey-Kountz discloses a regenerative available-to-promise system.

US 2001/0047285 by Borders discloses the scheduling of delivery of products over the internet.

US 2004/0068430 by Peachey-Kountz discloses a single level BOM ATP.

US 5444632 by Kline discloses an apparatus and method for controlling the scheduling of processing machines.

Wu, D.J.; "Agent-Based Stochastic Production Lines Design", Dec 2000, International Journal of Intelligent Systems in Accounting, Finance and Management; 9, 4, ABI/INFORM Global, p.257.

Nyamekye, Kofi; "New tool for business process re-engineering", Mar 2000, IIE Solutions, Vol. 32, Iss. 3, p.36, 6 pgs. ProQuest ID 51081454.

Albert, Mark; "Processing the Process", Aug 2001, Vol 74, Iss. 3, p.110, 8 pgs.

ProQuest ID 77601119.

Castagna, Romeo; Galli, Massimiliano; "A Model for Evaluating Manufacturing System Time Performance", 1992, Integrated Manufacturing Systems, v3n3, pp.15-21, Dialog 00649132.

Flynn, Barbara B; et.al. "Relationship between JIT and TQM: Practices and Procedures", Oct 1995, Academy of Management Journal, v38n5, pp.1325-1360, Dialog 00120189.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan G. Sterrett whose telephone number is 571-272-6881. The examiner can normally be reached on 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on 571-272-6729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

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Business Center (EBC) at 866-217-9197 (toll-free).

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JGS 6-22-2006

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